



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

**D412-664-443TRN**  
**Job Sheet 171094**



Part No: D412-664-443TRN

Job Qty: 1 ea

Part Name: Crosstube Turning Detail



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 1/28/18

Job Tracking No:

Due Date: 2/2/18

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: D412-664-443 REV.B IPP REV:A NEW ISSUE 13-09-26 JLM VERIFIED BY:DD

Ship Via:

### Bill of Materials

### Job Routing

| Op No | Operation          | Qty   | Start Date | Due Date | Standard  |         | Workcenter/Supplier   |           | Sign-off     |
|-------|--------------------|-------|------------|----------|-----------|---------|-----------------------|-----------|--------------|
|       |                    |       |            |          | Setup hrs | Run Hrs | Workcenter / Supplier | Lead Time |              |
| 90    | Start up Operation | 1 Ea  |            | 2/1/18   | 0.00      | 0.00    | Start Up Crosstubes-2 |           | PMP          |
| 100   | Mori Seiki         | 1 pcs |            | 2/1/18   | 3.09      | 4.00    | Mori Seiki TL-40      |           | PMP          |
| 110   | QC                 | 1 pcs |            | 2/1/18   | 0.00      | 0.00    | QC2-3                 |           | PMP          |
| 120   | Mori Seiki         | 1 pcs |            | 2/1/18   | 0.00      | 4.00    | Mori Seiki TL-40      |           | PMP          |
| 130   | QC                 | 1 pcs |            | 2/1/18   | 0.00      | 0.00    | QC2-3                 |           | PMP          |
| 140   | QC                 | 1 pcs |            | 2/1/18   | 0.00      | 0.00    | QC8                   |           | PMP          |
| 150   | Crosstubes         | 1 pcs |            | 2/2/18   | 0.00      | 0.63    | Crosstubes-2          |           | TW           |
| 180   | QC                 | 1 pcs |            | 2/2/18   | 0.00      | 0.00    | QC5                   |           | DPZ          |
| 190   | Packaging          | 1 pcs |            | 2/2/18   | 0.00      | 0.00    | Packaging3-2          |           | DPZ          |
| 200   | QC21-SA            | 1 Ea  |            | 2/2/18   | 0.00      | 0.00    | QC21                  |           | MAR 2 1 2018 |

Part Op 100 - 1-Cut tube on chop saw, leave extra mat'l for facing and instal plugs 412-443 on both ends 2-Face both sides of Descriptions: tube to length. 3-turn tube on both sides using program #2000 as per folio FB216 4--turn tube on both sides using program #3000 as per folio FB216 FOLIO REV: u/A DWG REV: B 5-Blend transition lines using belt sander with 60 grit sand paper

120 - 1-Turn tube on both sides using program #4000 and folio FB216 2-Turn tube on both sides using program #5000 and folio FB216 3-Blend transition lines using belt sander with 60 grit sand paper 4-SCRIBE PART NUMBER AS PER DWG

130 - PERFORME ULTRA SONIC MESURMENTS

150 - Grind machining marks smooth longitude way.

190 - LOCATION : LG003

### Job BOM

| Part / Item | Component Name     | Quantity    | Operation             | Container |
|-------------|--------------------|-------------|-----------------------|-----------|
| D6020-160   | Crosstube Material | 1 Ea (1 ea) | 90-Start up Operation |           |

### Job Allocations

| Operation             | Component Part | Required | Inventory | Allocated |
|-----------------------|----------------|----------|-----------|-----------|
| 90-Start up Operation | D6020-160      | 1        | 54        | 0         |

B133623

### Part Specifications

Specifications could not be found.

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

## WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>DISPOSITION</b><br><br><input type="checkbox"/> Reweld<br><input type="checkbox"/> Scrapped<br><input type="checkbox"/> Use-as-is<br><input type="checkbox"/> Suspected Unapproved                                                                                                                                                                                                                                                                                                                                   | <div style="text-align: right;"> <br/> <b>Container No: S046132</b><br/> <b>Part: D412-664-443TRN</b><br/> <b>Job No: 171094</b><br/> <b>Serial No/Batch: S046132</b><br/> <b>Revision: B</b><br/> <b>Inspector: _____</b> </div> <div style="text-align: right; font-size: small;"> <b>DATE: 02/27/18</b><br/><br/>       UAT Aerospace Ltd.<br/>       1270 Aberdeen Street<br/>       Hamilton, ON K8A 1K7<br/>       CANADA<br/>       TEL: 1 913 832-5200<br/>       Email: sales@dartaero.com<br/>       www.dartaerospace.com     </div> |
| Date : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Step #: _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Description Work Order Deviation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Root Cause</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <input type="checkbox"/> Environment<br><input type="checkbox"/> Design<br><input type="checkbox"/> Doc/Data<br><input type="checkbox"/> Equip/Tooling<br><input type="checkbox"/> Handling/Pre<br><input type="checkbox"/> Material<br><input type="checkbox"/> Internal Transport<br><input type="checkbox"/> Tribal Knowledge<br><input type="checkbox"/> LOA<br><input type="checkbox"/> Substation<br><input type="checkbox"/> Past Expiry Date<br><input type="checkbox"/> Misidentified | <input type="checkbox"/> No Re-verification<br><input type="checkbox"/> Operator<br><input type="checkbox"/> Offset/Setup<br><input type="checkbox"/> Supplier<br><input type="checkbox"/> Training<br><input type="checkbox"/> Use for Testing<br><input type="checkbox"/> Poor Information<br><input type="checkbox"/> Rushing<br><input type="checkbox"/> Product Improvement<br><input type="checkbox"/> Process Improvement<br><input type="checkbox"/> Manufacturing Process<br><input type="checkbox"/> Past Due | <input type="checkbox"/> Pressure/Forced<br><input type="checkbox"/> Bending<br><input type="checkbox"/> Centre Not Concentric<br><input type="checkbox"/> Cracks<br><input type="checkbox"/> Crimp/Kink/Ripple/Wave<br><input type="checkbox"/> Cuffs<br><input type="checkbox"/> Crushing<br><input type="checkbox"/> Heat Treat<br><input type="checkbox"/> Wave/Twist in Tube<br><input type="checkbox"/> Marks/Chatter<br><br><input type="checkbox"/> OTHER : _____                                                                       |
| <b>FAULT CATEGORY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <input type="checkbox"/> Temperature/Cure<br><input type="checkbox"/> Set-up<br><input type="checkbox"/> BOM/Route<br><input type="checkbox"/> Broken/Damage/Defect<br><input type="checkbox"/> Inspection Incomplete/Unqualified<br><input type="checkbox"/> Contamination<br><input type="checkbox"/> Countersink<br><input type="checkbox"/> Cut Too Short<br><input type="checkbox"/> Instructions Incomplete/Unclear<br><input type="checkbox"/> Drill Holes                              | <input type="checkbox"/> Power Loss/Surge<br><input type="checkbox"/> Folio/Program<br><input type="checkbox"/> Grain<br><input type="checkbox"/> Weld<br><input type="checkbox"/> Wrong Stock Pulled<br><input type="checkbox"/> Out of Sequence<br><input type="checkbox"/> Off-set<br><input type="checkbox"/> Mislabeled<br><input type="checkbox"/> Fit/Function<br><input type="checkbox"/> Misaligned/off center                                                                                                 | <input type="checkbox"/> Positioned Wrong<br><input type="checkbox"/> Outside Dimensions<br><input type="checkbox"/> Over/Under tolerance<br><input type="checkbox"/> Part Incorrect<br><input type="checkbox"/> Part Lost/Missing<br><input type="checkbox"/> Part Moved<br><input type="checkbox"/> Drawing<br><input type="checkbox"/> Finish<br><input type="checkbox"/> Misread<br><input type="checkbox"/> Turning Sequence                                                                                                               |



|                                                          |                     |                    |
|----------------------------------------------------------|---------------------|--------------------|
| <b>DART AEROSPACE LTD</b>                                | <b>Work Order:</b>  | 171094             |
| <b>Description: Crosstube Assembly (412 High Aft SS)</b> | <b>Part Number:</b> | D412-664-443       |
| <b>Inspection Dwg: D412-664-443 Rev: B</b>               |                     | <b>Page 1 of 2</b> |

### FIRST ARTICLE INSPECTION CHECKLIST

| Inspection Sheet | Drawing Dimension | Tolerance     | Actual Dimension | Accept | Reject | Method of Inspection | Comments |
|------------------|-------------------|---------------|------------------|--------|--------|----------------------|----------|
| SIDE A           | 2.776             | +0.005/-0.000 | 2.781            | ✓      |        | BLM 2"-3" 04         |          |
|                  | 2.776             | +0.005/-0.000 | 2.781            | ✓      |        |                      |          |
|                  | 2.880             | +0.005/-0.000 | 2.885            | ✓      |        |                      |          |
|                  | 2.990             | +0.005/-0.000 | 2.993            | ✓      |        |                      |          |
|                  | 3.100             | +0.005/-0.000 | 3.105 MP         | ✓      |        | BLM 3"-4" 05         |          |
|                  | 3.250             | +0.005/-0.000 | 3.255 MP         | ✓      |        | "                    |          |
|                  |                   |               |                  |        |        |                      |          |
|                  | 7.980             | +/-0.060      | 7.991            | ✓      |        | VERN 08              |          |
|                  | 0.063             | +/-0.010      | .063             | ✓      |        | RG                   |          |
|                  | 0.500             | +/-0.010      | .500             | ✓      |        | RG                   |          |
|                  | 2.990             | +0.005/-0.000 | 2.994            | ✓      |        | VERN 08              |          |
|                  | 2.776             | +0.005/-0.000 | 2.781            | ✓      |        |                      |          |
|                  |                   |               |                  |        |        |                      |          |
|                  |                   |               |                  |        |        |                      |          |
| SIDE B           | 2.776             | +0.005/-0.000 | 2.781            | ✓      |        | BLM 2"-3" 04         |          |
|                  | 2.776             | +0.005/-0.000 | 2.781            | ✓      |        |                      |          |
|                  | 2.880             | +0.005/-0.000 | 2.885            | ✓      |        |                      |          |
|                  | 2.990             | +0.005/-0.000 | 2.995            | ✓      |        |                      |          |
|                  | 3.100             | +0.005/-0.000 | 3.105            | ✓      |        | BLM 3"-4" 05         |          |
|                  | 3.250             | +0.005/-0.000 | 3.255            | ✓      |        | "                    |          |
|                  |                   |               |                  |        |        |                      |          |
|                  | 7.98              | +/-0.060      | 7.988            | ✓      |        | VERN 08              |          |
|                  | R0.063            | +/-0.010      | .063             | ✓      |        | RG                   |          |
|                  | R0.50             | +/-0.010      | .500             | ✓      |        | RG                   |          |
|                  | Ø2.990            | +0.005/-0.000 | 2.994            | ✓      |        | VERN 08              |          |
|                  | 2.776             | +0.005/-0.000 | 2.781            | ✓      |        |                      |          |
|                  |                   |               |                  |        |        |                      |          |
|                  |                   |               |                  |        |        |                      |          |
|                  | 130.10            | +/-0.060      | 130.1            | ✓      |        | TAPE                 |          |

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

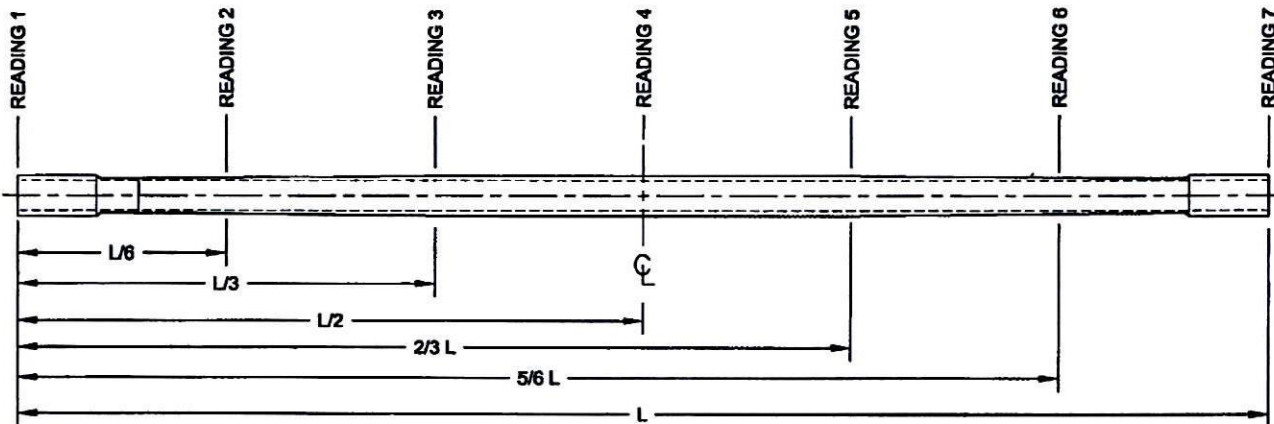
**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                      | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Date :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Step #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | MRB (QSI042) Approval                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Completed By                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Lead hand / Supervisor Approval Verification                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | QC / QA Coordinator Approval                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Root Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | FAULT CATEGORY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Environment <input type="checkbox"/><br>Design <input type="checkbox"/><br>Doc/Data <input type="checkbox"/><br>Equip/Tooling <input type="checkbox"/><br>Handling/Pre <input type="checkbox"/><br>Material <input type="checkbox"/><br>Internal Transport <input type="checkbox"/><br>Tribal Knowledge <input type="checkbox"/><br>LOA <input type="checkbox"/><br>Substation <input type="checkbox"/><br>Past Expiry Date <input type="checkbox"/><br>Misidentified <input type="checkbox"/> | No Re-verification <input type="checkbox"/><br>Operator <input type="checkbox"/><br>Offset/Setup <input type="checkbox"/><br>Supplier <input type="checkbox"/><br>Training <input type="checkbox"/><br>Use for Testing <input type="checkbox"/><br>Poor Information <input type="checkbox"/><br>Rushing <input type="checkbox"/><br>Product Improvement <input type="checkbox"/><br>Process Improvement <input type="checkbox"/><br>Manufacturing Process <input type="checkbox"/><br>Past Due <input type="checkbox"/> | Pressure/Forced <input type="checkbox"/><br>Bending <input type="checkbox"/><br>Centre Not Concentric <input type="checkbox"/><br>Cracks <input type="checkbox"/><br>Crimp/Kink/Ripple/Wave <input type="checkbox"/><br>Cuffs <input type="checkbox"/><br>Crushing <input type="checkbox"/><br>Heat Treat <input type="checkbox"/><br>Wave/Twist in Tube <input type="checkbox"/><br>Marks/Chatter <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Temperature/Cure <input type="checkbox"/><br>Set-up <input type="checkbox"/><br>BOM/Route <input type="checkbox"/><br>Broken/Damage/Defect <input type="checkbox"/><br>Inspection Incomplete/Unqualified <input type="checkbox"/><br>Contamination <input type="checkbox"/><br>Countersink <input type="checkbox"/><br>Cut Too Short <input type="checkbox"/><br>Instructions Incomplete/Unclear <input type="checkbox"/><br>Drill Holes <input type="checkbox"/> | Power Loss/Surge <input type="checkbox"/><br>Folio/Program <input type="checkbox"/><br>Grain <input type="checkbox"/><br>Weld <input type="checkbox"/><br>Wrong Stock Pulled <input type="checkbox"/><br>Out of Sequence <input type="checkbox"/><br>Off-set <input type="checkbox"/><br>Mislabeled <input type="checkbox"/><br>Fit/Function <input type="checkbox"/><br>Misaligned/off center <input type="checkbox"/> | Positioned Wrong <input type="checkbox"/><br>Outside Dimensions <input type="checkbox"/><br>Over/Under tolerance <input type="checkbox"/><br>Part Incorrect <input type="checkbox"/><br>Part Lost/Missing <input type="checkbox"/><br>Part Moved <input type="checkbox"/><br>Drawing <input type="checkbox"/><br>Finish <input type="checkbox"/><br>Misread <input type="checkbox"/><br>Turning Sequence <input type="checkbox"/> |
| OTHER : <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                   |



**WALL THICKNESS MEASUREMENT**

| Location               | WALL THICKNESS MEASUREMENT (IN) |     |     |     | Deviation<br>$\Delta w$<br>(max-min) | TOLERANCE |
|------------------------|---------------------------------|-----|-----|-----|--------------------------------------|-----------|
|                        | w1                              | w2  | w3  | w4  |                                      |           |
| READING 1<br>L= 0"     | 307                             | 309 | 314 | 311 | .007                                 | 0.073"    |
| READING 2<br>L= 21.68  | 193                             | 208 | 215 | 200 | .022                                 |           |
| READING 3<br>L= 43.37  | 304                             | 315 | 329 | 317 | .025                                 |           |
| READING 4<br>L= 65.05  | 441                             | 434 | 448 | 446 | .014                                 |           |
| READING 5<br>L= 86.73  | 312                             | 314 | 321 | 320 | .009                                 |           |
| READING 6<br>L= 108.42 | 201                             | 198 | 205 | 208 | .010                                 |           |
| READING 7<br>L= 130.1  | 307                             | 308 | 311 | 309 | .009                                 |           |

**Calibration Result**Actual Block Thickness: 200.500Sitiescan 250 Measured Thickness: 200.500

|                         |             |                       |
|-------------------------|-------------|-----------------------|
| Measured by: <u>PMP</u> | Audited by: | Preliminary Approval: |
| Date: <u>2017-02-27</u> | Date:       | Date:                 |

| Rev | Date     | Change                       | Revised by | Approved |
|-----|----------|------------------------------|------------|----------|
| A   | 14.06.24 | New Issue (P/O D412-664-403) | KJ         |          |
| B   | 17.07.12 | Dwg Rev updated              | KJ         |          |

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

## WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                              |                      |                          |                                   |                          |            |                          |                     |                          |             |                          |
|--------------------------------------------------------------|----------------------|--------------------------|-----------------------------------|--------------------------|------------|--------------------------|---------------------|--------------------------|-------------|--------------------------|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ | <b>DISPOSITION</b>   |                          | <b>AGAINST DEPARTMENT/PROCESS</b> |                          |            |                          |                     |                          |             |                          |
|                                                              | Rework               | <input type="checkbox"/> | Skid-tube                         | <input type="checkbox"/> | Cross tube | <input type="checkbox"/> | Water Jet           | <input type="checkbox"/> | Engineering | <input type="checkbox"/> |
|                                                              | Scrap                | <input type="checkbox"/> | Machining                         | <input type="checkbox"/> | Small Fab  | <input type="checkbox"/> | Prod. Eng. Coord.   | <input type="checkbox"/> | Quality     | <input type="checkbox"/> |
|                                                              | Use-as-is            | <input type="checkbox"/> | Thermoforming                     | <input type="checkbox"/> | Finishing  | <input type="checkbox"/> | Rec/Store/Packaging | <input type="checkbox"/> | Other       | <input type="checkbox"/> |
|                                                              | Suspected Unapproved | <input type="checkbox"/> | Large Fab                         | <input type="checkbox"/> | Composite  | <input type="checkbox"/> | Supplier            | <input type="checkbox"/> |             | <input type="checkbox"/> |

|        |         |                 |                       |
|--------|---------|-----------------|-----------------------|
| Date : | Step #: | QTY Effective : | MRB (QSI042) Approval |
|--------|---------|-----------------|-----------------------|

|                                         |                    |                                                     |
|-----------------------------------------|--------------------|-----------------------------------------------------|
| <b>Description Work Order Deviation</b> | <b>Disposition</b> | <b>Completed By</b>                                 |
|                                         |                    | <b>Lead hand / Supervisor Approval Verification</b> |
|                                         |                    | <b>QC / QA Coordinator Approval</b>                 |
|                                         |                    |                                                     |

|                    |                          |                     |                        |                          |                                   |
|--------------------|--------------------------|---------------------|------------------------|--------------------------|-----------------------------------|
| <b>Root Cause</b>  |                          |                     | <b>FAULT CATEGORY</b>  |                          |                                   |
| Environment        | <input type="checkbox"/> | No Re-verification  | Pressure/Forced        | <input type="checkbox"/> | Temperature/Cure                  |
| Design             | <input type="checkbox"/> | Operator            | Bending                | <input type="checkbox"/> | Set-up                            |
| Doc/Data           | <input type="checkbox"/> | Offset/Setup        | Centre Not Concentric  | <input type="checkbox"/> | BOM/Route                         |
| Equip/Tooling      | <input type="checkbox"/> | Supplier            | Cracks                 | <input type="checkbox"/> | Broken/Damage/Defect              |
| Handling/Pre       | <input type="checkbox"/> | Training            | Crimp/Kink/Ripple/Wave | <input type="checkbox"/> | Inspection Incomplete/Unqualified |
| Material           | <input type="checkbox"/> | Use for Testing     | Cuffs                  | <input type="checkbox"/> | Contamination                     |
| Internal Transport | <input type="checkbox"/> | Poor Information    | Crushing               | <input type="checkbox"/> | Countersink                       |
| Tribal Knowledge   | <input type="checkbox"/> | Rushing             | Heat Treat             | <input type="checkbox"/> | Cut Too Short                     |
| LOA                | <input type="checkbox"/> | Product Improvement | Wave/Twist in Tube     | <input type="checkbox"/> | Instructions Incomplete/Unclear   |
| Substation         | <input type="checkbox"/> | Process Improvement | Marks/Chatter          | <input type="checkbox"/> | Drill Holes                       |
|                    |                          |                     |                        |                          | Power Loss/Surge                  |
|                    |                          |                     |                        |                          | Folio/Program                     |
|                    |                          |                     |                        |                          | Grain                             |
|                    |                          |                     |                        |                          | Weld                              |
|                    |                          |                     |                        |                          | Wrong Stock Pulled                |
|                    |                          |                     |                        |                          | Out of Sequence                   |
|                    |                          |                     |                        |                          | Off-set                           |
|                    |                          |                     |                        |                          | Mislabeled                        |
|                    |                          |                     |                        |                          | Fit/Function                      |
|                    |                          |                     |                        |                          | Misaligned/off center             |
|                    |                          |                     |                        |                          | Positioned Wrong                  |
|                    |                          |                     |                        |                          | Outside Dimensions                |
|                    |                          |                     |                        |                          | Over/Under tolerance              |
|                    |                          |                     |                        |                          | Part Incorrect                    |
|                    |                          |                     |                        |                          | Part Lost/Missing                 |
|                    |                          |                     |                        |                          | Part Moved                        |
|                    |                          |                     |                        |                          | Drawing                           |
|                    |                          |                     |                        |                          | Finish                            |
|                    |                          |                     |                        |                          | Misread                           |
|                    |                          |                     |                        |                          | Turning Sequence                  |



| Item | Qty         | Part Number         | Description                     |
|------|-------------|---------------------|---------------------------------|
|      | <b>-443</b> |                     |                                 |
| 1    | X           | D412-684-443        | CROSSTUBE ASSEMBLY (412 HI AFT) |
| 2    | 1           | D6020-132           | CROSSTUBE MATERIAL              |
| 3    | 2           | D4910-1             | CHAFING SHIELD                  |
| 4    | 1           | D5380-1             | SUPPORT                         |
| 5    | 1           | D5380-3             | SUPPORT BASE                    |
| 6    | 4           | MS21920-26          | CLAMP                           |
| 7    | 8           | NAS1805-4P          | NUT                             |
| 8    | 8           | NAS6704-21          | BOLT                            |
| 9    | A/R         | SCOTCH-WELD DP460   | EPOXY ADHESIVE, 3M SCOTCH-WELD  |
| 10   | A/R         | PROSEAL 890 OR 1422 | SEALANT                         |

#### GENERAL NOTES:

- MATERIAL: MANUFACTURED FROM D6020-132  
FINISHED LENGTH = 130.10±0.060 (BEFORE BENDING/TRIMMING)
- FINISH: PREPARE TUBE PER QSI 005 SECTION 4.1.4  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
APPLY MATTE CLEAR COAT TO UNDERSIDE OF CROSSTUBE PER DART QSI 005 4.2  
MASK UNDERSIDE OF CROSSTUBE AS SHOWN (ZN C6-2, HATCHED AREA)  
PAINT OUTSIDE PER DART QSI 005 4.2  
AFTER PAINTING, REMOVE MASKING
- TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART P/N "D412-684-443" AND B/N ON INSIDE OF CUFF PER DART QSI 044 6.4 (VIBRATING STYLUS)
- WEIGHT: 87.8 lb FINISHED WEIGHT
- PART IS SYMMETRIC ABOUT CENTERLINE.
- EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

#### BENDING

- BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 7% (BASED ON O.D.) IN LOWER HALF OF R35 BEND AND 6% (BASED ON O.D.) ON REMAINING TUBE.
- LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038. TO BE PERFORMED AFTER FINAL POST-BEND GRINDING. ANY ADDITIONAL GRINDING REQUIRES ANOTHER LPI INSPECTION.

#### ASSEMBLY

- LOCATE THE D5380-1/3 SUPPORTS ONTO THE CROSSTUBE AS SHOWN IN THE ASSEMBLY DETAIL.
- ABRADE THE MATING SURFACES OF THE CROSSTUBE AND D5380-1/3 SUPPORT HALVES WITH 180-GRIT SANDPAPER. SATURATE A CLEAN CLOTH WITH MEK, 4105S WASH'N'WIPE DEGREASER OR EQUIVALENT AND WIPE CLEAN UNTIL THERE IS NO RESIDUE.
- APPLY A 0.04" TO 0.07" THICK LAYER OF 3M DP460 ADHESIVE ONTO THE CONCAVE SURFACE OF THE D5380-1 SUPPORT AND THE D5380-3 SUPPORT BASE.
- INSTALL D5380-1 SUPPORT ONTO THE CROSSTUBE AS SHOWN IN THE ASSEMBLY DETAIL AND INSTALL QTY (2) NAS6704-21 BOLTS INTO OPPOSING CORNERS OF THE D5380-1 SUPPORT. ALIGN THE BOLTS WITH THE HOLES ON D5380-3 SUPPORT BASE AND INSTALL ONTO THE CROSSTUBE.
- INSTALL THE REMAINING QTY (6) NAS6704-21 BOLTS AND QTY (8) NAS1805-4P NUTS, THEN EVENLY TORQUE THE NUTS IN A CRISS-CROSS PATTERN TO 60-70 IN-LBS. ENSURE A MINIMUM OF 1.5 THREADS ARE IN SAFETY.
- WIPE OFF EXCESS ADHESIVE USING A CLEAN CLOTH SATURATED WITH MEK, 4105S WASH'N'WIPE DEGREASER OR EQUIVALENT
- ALLOW DP460 ADHESIVE TO CURE FOR 24 HOURS.
- FILLET SEAL THE EDGES OF THE D5380-1/3 SUPPORT HALVES WITH PROSEAL PR1422 B1/2 OR PR890 B1/2 ALLOW PROSEAL TO CURE FOR 24 HOURS.
- IF NOT ALREADY PRESENT ON D4910-1 CHAFING SHIELD, APPLY A 0.015" TO 0.020" THICK COAT OF PROSEAL 890/1422 ON INSIDE CONCAVE SURFACE OF D4910-1 CHAFING SHIELD AND LET CURE PER MANUFACTURER'S INSTRUCTIONS.
- RECOAT THE D4910-1 CHAFING SHIELD WITH 0.015"-0.020" OF PROSEAL 890/1422 AND IMMEDIATELY INSTALL ONTO THE CROSSTUBE. BE SURE TO ELIMINATE ANY AIR GAPS. ENSURE THE D4910-1 CHAFING SHIELDS ARE WRAPPED TIGHTLY.
- TORQUE CLAMPS ON D4910-1 CHAFING SHIELD 40 TO 50 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON MS21920-26 CLAMPS AFTER ADHESIVES HAVE CURED FOR 24 HOURS.

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1801-29

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2017 JUN 21  
ECN17-593

|            |                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                          |              |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| B          | ADD ITEMS 4, 5, 7, AND 8. DELETED ITEMS D4909-1, MS21920-28 & D3595-063-530. NOTE 2 UPDATED FOR TUBE FINISH. ALL ASSEMBLY NOTES REWRITTEN. SHEET 2 SECTION A-A ANGLE DIM ADDED FOR CHAFING SHIELD INSTALLATION. ASSEMBLY DETAIL AND SECTION B-B UPDATED FOR INSTALLATION OF D5380-1/3. | AJS                                                                                                                                                                                                                                                                      | 16.11.03     |
| A          | NEW ISSUE                                                                                                                                                                                                                                                                              | CP                                                                                                                                                                                                                                                                       | 14.04.01     |
| REV.       | DESCRIPTION                                                                                                                                                                                                                                                                            | BY                                                                                                                                                                                                                                                                       | DATE         |
| DESIGN     | CP                                                                                                                                                                                                                                                                                     | DART AEROSPACE LTD                                                                                                                                                                                                                                                       |              |
| DRAWN      | AJS                                                                                                                                                                                                                                                                                    | HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                              |              |
| CHECKED    | M. Ray                                                                                                                                                                                                                                                                                 | DRAWING NO.                                                                                                                                                                                                                                                              | REV. B       |
| MFG. APPR. | CL                                                                                                                                                                                                                                                                                     | D412-684-443                                                                                                                                                                                                                                                             | SHEET 1 OF 4 |
| APPROVED   | CL                                                                                                                                                                                                                                                                                     | TITLE                                                                                                                                                                                                                                                                    | SCALE        |
| DE APPR.   | #                                                                                                                                                                                                                                                                                      | CROSSTUBE ASSY (412 HI AFT)                                                                                                                                                                                                                                              | NTS          |
| DATE       | 16.11.03                                                                                                                                                                                                                                                                               | COPYRIGHT © 2013 BY DART AEROSPACE LTD<br>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD. |              |

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

## WORK ORDER NON-CONFORMANCE / UPDATE



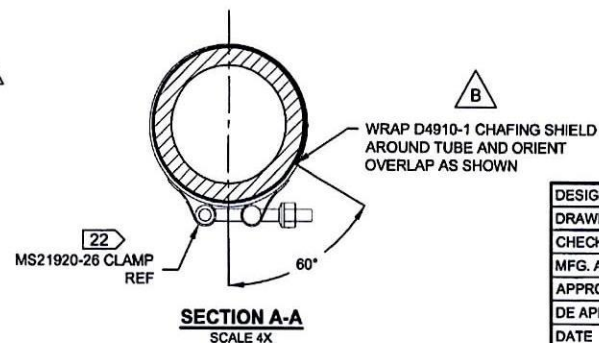
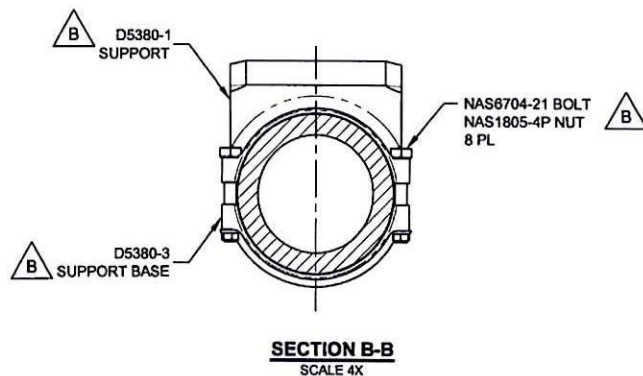
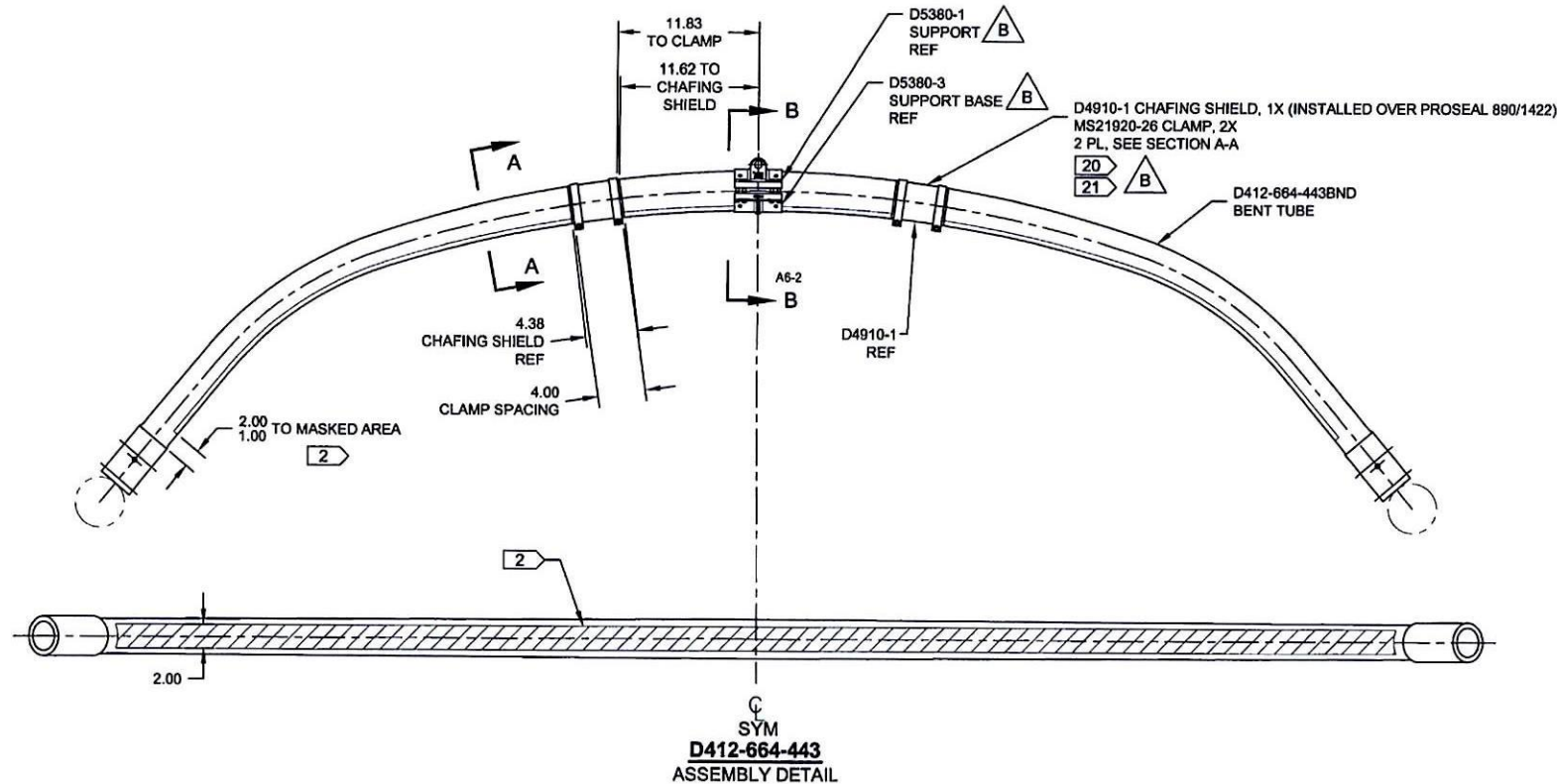
QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |                                                                                                                                                     |  |  |
|--------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ |  | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> |  | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |  |  |                                                                                                                                                     |  |  |
| Date :                                                       |  | Step #:                                                                                                                                                                            |  | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  | MRB (QSI042) Approval<br><br><br>Completed By<br><br><br>Lead hand / Supervisor<br>Approval Verification<br><br><br>QC / QA Coordinator<br>Approval |  |  |
| Description Work Order Deviation                             |  |                                                                                                                                                                                    |  | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |                                                                                                                                                     |  |  |
|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |                                                                                                                                                     |  |  |

| Root Cause                                  |                                              |                                                 |                                                            | FAULT CATEGORY                                 |                                               |  |  |
|---------------------------------------------|----------------------------------------------|-------------------------------------------------|------------------------------------------------------------|------------------------------------------------|-----------------------------------------------|--|--|
| Environment <input type="checkbox"/>        | No Re-verification <input type="checkbox"/>  | Pressure/Forced <input type="checkbox"/>        | Temperature/Cure <input type="checkbox"/>                  | Power Loss/Surge <input type="checkbox"/>      | Positioned Wrong <input type="checkbox"/>     |  |  |
| Design <input type="checkbox"/>             | Operator <input type="checkbox"/>            | Bending <input type="checkbox"/>                | Set-up <input type="checkbox"/>                            | Folio/Program <input type="checkbox"/>         | Outside Dimensions <input type="checkbox"/>   |  |  |
| Doc/Data <input type="checkbox"/>           | Offset/Setup <input type="checkbox"/>        | Centre Not Concentric <input type="checkbox"/>  | BOM/Route <input type="checkbox"/>                         | Grain <input type="checkbox"/>                 | Over/Under tolerance <input type="checkbox"/> |  |  |
| Equip/Tooling <input type="checkbox"/>      | Supplier <input type="checkbox"/>            | Cracks <input type="checkbox"/>                 | Broken/Damage/Defect <input type="checkbox"/>              | Weld <input type="checkbox"/>                  | Part Incorrect <input type="checkbox"/>       |  |  |
| Handling/Pre <input type="checkbox"/>       | Training <input type="checkbox"/>            | Crimp/Kink/Ripple/Wave <input type="checkbox"/> | Inspection Incomplete/Unqualified <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/>    | Part Lost/Missing <input type="checkbox"/>    |  |  |
| Material <input type="checkbox"/>           | Use for Testing <input type="checkbox"/>     | Cuffs <input type="checkbox"/>                  | Contamination <input type="checkbox"/>                     | Out of Sequence <input type="checkbox"/>       | Part Moved <input type="checkbox"/>           |  |  |
| Internal Transport <input type="checkbox"/> | Poor Information <input type="checkbox"/>    | Crushing <input type="checkbox"/>               | Countersink <input type="checkbox"/>                       | Off-set <input type="checkbox"/>               | Drawing <input type="checkbox"/>              |  |  |
| Tribal Knowledge <input type="checkbox"/>   | Rushing <input type="checkbox"/>             | Heat Treat <input type="checkbox"/>             | Cut Too Short <input type="checkbox"/>                     | Mislabeled <input type="checkbox"/>            | Finish <input type="checkbox"/>               |  |  |
| LOA <input type="checkbox"/>                | Product Improvement <input type="checkbox"/> | Wave/Twist in Tube <input type="checkbox"/>     | Instructions Incomplete/Unclear <input type="checkbox"/>   | Fit/Function <input type="checkbox"/>          | Misread <input type="checkbox"/>              |  |  |
| Substation <input type="checkbox"/>         | Process Improvement <input type="checkbox"/> | Marks/Chatter <input type="checkbox"/>          | Drill Holes <input type="checkbox"/>                       | Misaligned/off center <input type="checkbox"/> | Turning Sequence <input type="checkbox"/>     |  |  |





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2017 JUN 21

|            |                    |                                                                                                                                                                                                                                                                          |              |
|------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| DESIGN     | CP                 | <b>DART AEROSPACE LTD</b>                                                                                                                                                                                                                                                |              |
| DRAWN      | AJS                | HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                              |              |
| CHECKED    | <i>[Signature]</i> | DRAWING NO.                                                                                                                                                                                                                                                              | REV. B       |
| MFG. APPR. | <i>[Signature]</i> | D412-664-443                                                                                                                                                                                                                                                             | SHEET 2 OF 4 |
| APPROVED   | <i>[Signature]</i> | TITLE                                                                                                                                                                                                                                                                    | SCALE        |
| DE APPR.   | <i>[Signature]</i> | CROSSTUBE ASSY (412 HI AFT)                                                                                                                                                                                                                                              | NTS          |
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## WORK ORDER NON-CONFORMANCE / UPDATE

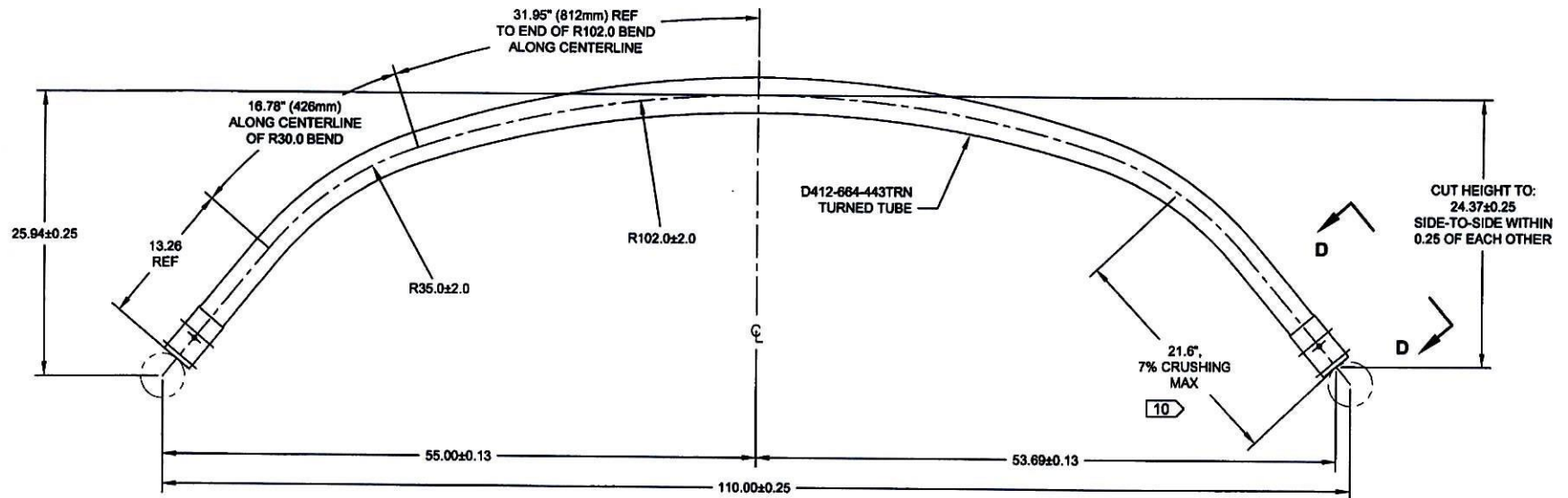


QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

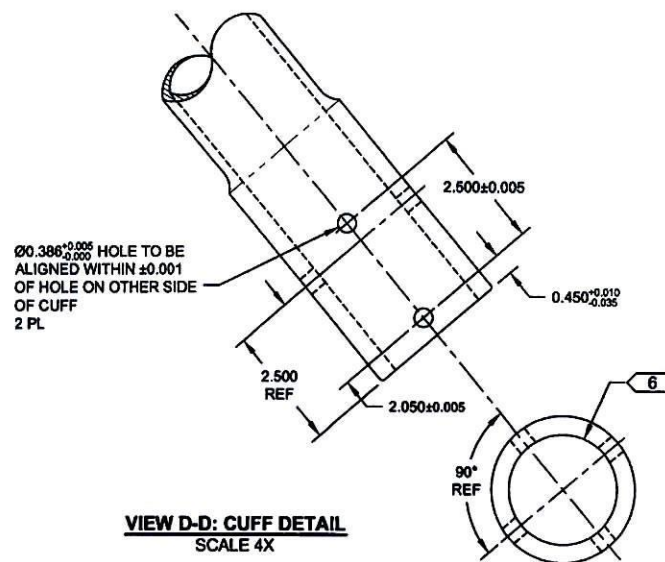
Work Order update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                              |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                              |  |
| Date : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Step #: _____                                                                                                                                                                      | QTY Effective : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  | MRB (QSI042) Approval                        |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Completed By                                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | Lead hand / Supervisor Approval Verification |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | QC / QA Coordinator Approval                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                              |  |
| <b>Root Cause</b><br><div style="display: flex; justify-content: space-between;"> <div>           Environment <input type="checkbox"/><br/>           Design <input type="checkbox"/><br/>           Doc/Data <input type="checkbox"/><br/>           Equip/Tooling <input type="checkbox"/><br/>           Handling/Pre <input type="checkbox"/><br/>           Material <input type="checkbox"/><br/>           Internal Transport <input type="checkbox"/><br/>           Tribal Knowledge <input type="checkbox"/><br/>           LOA <input type="checkbox"/><br/>           Substation <input type="checkbox"/> </div> <div>           No Re-verification <input type="checkbox"/><br/>           Operator <input type="checkbox"/><br/>           Offset/Setup <input type="checkbox"/><br/>           Supplier <input type="checkbox"/><br/>           Training <input type="checkbox"/><br/>           Use for Testing <input type="checkbox"/><br/>           Poor Information <input type="checkbox"/><br/>           Rushing <input type="checkbox"/><br/>           Product Improvement <input type="checkbox"/><br/>           Process Improvement <input type="checkbox"/> </div> <div>           Pressure/Forced <input type="checkbox"/><br/>           Bending <input type="checkbox"/><br/>           Centre Not Concentric <input type="checkbox"/><br/>           Cracks <input type="checkbox"/><br/>           Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>           Cuffs <input type="checkbox"/><br/>           Crushing <input type="checkbox"/><br/>           Heat Treat <input type="checkbox"/><br/>           Wave/Twist in Tube <input type="checkbox"/><br/>           Marks/Chatter <input type="checkbox"/> </div> </div> |                                                                                                                                                                                    | <b>FAULT CATEGORY</b><br><div style="display: flex; justify-content: space-between;"> <div>           Temperature/Cure <input type="checkbox"/><br/>           Set-up <input type="checkbox"/><br/>           BOM/Route <input type="checkbox"/><br/>           Broken/Damage/Defect <input type="checkbox"/><br/>           Inspection Incomplete/Unqualified <input type="checkbox"/><br/>           Contamination <input type="checkbox"/><br/>           Countersink <input type="checkbox"/><br/>           Cut Too Short <input type="checkbox"/><br/>           Instructions Incomplete/Unclear <input type="checkbox"/><br/>           Drill Holes <input type="checkbox"/> </div> <div>           Power Loss/Surge <input type="checkbox"/><br/>           Folio/Program <input type="checkbox"/><br/>           Grain <input type="checkbox"/><br/>           Weld <input type="checkbox"/><br/>           Wrong Stock Pulled <input type="checkbox"/><br/>           Out of Sequence <input type="checkbox"/><br/>           Off-set <input type="checkbox"/><br/>           Mislabeled <input type="checkbox"/><br/>           Fit/Function <input type="checkbox"/><br/>           Misaligned/off center <input type="checkbox"/> </div> <div>           Positioned Wrong <input type="checkbox"/><br/>           Outside Dimensions <input type="checkbox"/><br/>           Over/Under tolerance <input type="checkbox"/><br/>           Part Incorrect <input type="checkbox"/><br/>           Part Lost/Missing <input type="checkbox"/><br/>           Part Moved <input type="checkbox"/><br/>           Drawing <input type="checkbox"/><br/>           Finish <input type="checkbox"/><br/>           Misread <input type="checkbox"/><br/>           Turning Sequence <input type="checkbox"/> </div> </div> |  |                                              |  |





**D412-664-443BND**  
BENDING DETAIL



**VIEW D-D: CUFF DETAIL**  
SCALE 4X

**RELEASED**

2017 JUN 21

|            |                    |                                                                                                                                                                                                                                                                                                                                                       |              |
|------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| DESIGN     | CP                 | <b>DART AEROSPACE LTD</b>                                                                                                                                                                                                                                                                                                                             |              |
| DRAWN      | AJS                | HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                                                                                                           |              |
| CHECKED    | <i>[Signature]</i> | DRAWING NO.                                                                                                                                                                                                                                                                                                                                           | REV. B       |
| MFG. APPR. | <i>[Signature]</i> | D412-664-443                                                                                                                                                                                                                                                                                                                                          | SHEET 3 OF 4 |
| APPROVED   | <i>[Signature]</i> | TITLE                                                                                                                                                                                                                                                                                                                                                 | SCALE        |
| DE APPR.   | <i>[Signature]</i> | CROSSTUBE ASSY (412 HI AFT)                                                                                                                                                                                                                                                                                                                           | NTS          |
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## WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_ Work Order update only ☐

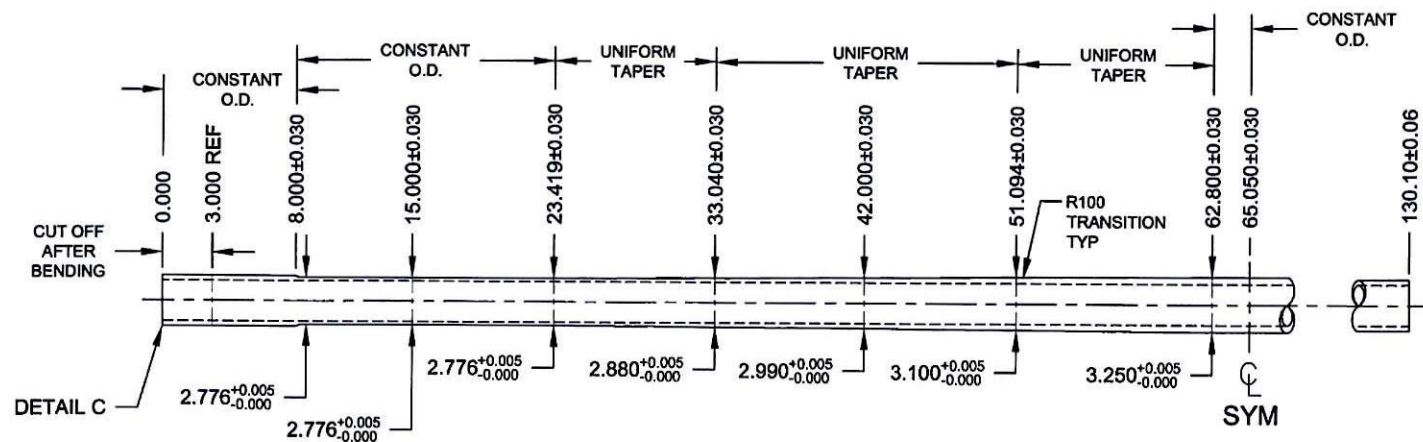
|                   |                                                                                                                                                                                |                                        |                                     |                                              |                                      |  |  |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-------------------------------------|----------------------------------------------|--------------------------------------|--|--|
| Work Order: _____ | <b>DISPOSITION</b><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b>      |                                     |                                              |                                      |  |  |
| Part No. _____    |                                                                                                                                                                                | Skid-tube <input type="checkbox"/>     | Cross tube <input type="checkbox"/> | Water Jet <input type="checkbox"/>           | Engineering <input type="checkbox"/> |  |  |
| NCR No. _____     |                                                                                                                                                                                | Machining <input type="checkbox"/>     | Small Fab <input type="checkbox"/>  | Prod. Eng. Coord. <input type="checkbox"/>   | Quality <input type="checkbox"/>     |  |  |
|                   |                                                                                                                                                                                | Thermoforming <input type="checkbox"/> | Finishing <input type="checkbox"/>  | Rec/Store/Packaging <input type="checkbox"/> | Other <input type="checkbox"/>       |  |  |
|                   |                                                                                                                                                                                | Large Fab <input type="checkbox"/>     | Composite <input type="checkbox"/>  | Supplier <input type="checkbox"/>            |                                      |  |  |

|        |         |                 |                       |
|--------|---------|-----------------|-----------------------|
| Date : | Step #: | QTY Effective : | MRB (QSI042) Approval |
|--------|---------|-----------------|-----------------------|

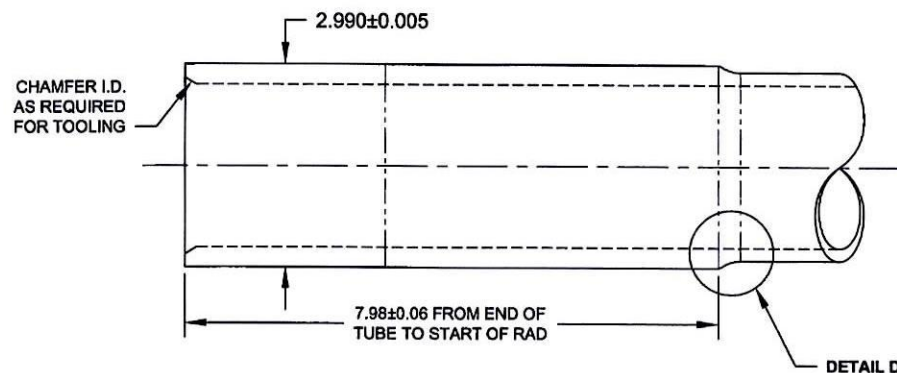
| Description Work Order Deviation | Disposition | Completed By                                 |
|----------------------------------|-------------|----------------------------------------------|
|                                  |             | Lead hand / Supervisor Approval Verification |
|                                  |             | QC / QA Coordinator Approval                 |
|                                  |             |                                              |

| Root Cause                                  |                                              | FAULT CATEGORY                                  |                                                            |                                                |                                               |
|---------------------------------------------|----------------------------------------------|-------------------------------------------------|------------------------------------------------------------|------------------------------------------------|-----------------------------------------------|
| Environment <input type="checkbox"/>        | No Re-verification <input type="checkbox"/>  | Pressure/Forced <input type="checkbox"/>        | Temperature/Cure <input type="checkbox"/>                  | Power Loss/Surge <input type="checkbox"/>      | Positioned Wrong <input type="checkbox"/>     |
| Design <input type="checkbox"/>             | Operator <input type="checkbox"/>            | Bending <input type="checkbox"/>                | Set-up <input type="checkbox"/>                            | Folio/Program <input type="checkbox"/>         | Outside Dimensions <input type="checkbox"/>   |
| Doc/Data <input type="checkbox"/>           | Offset/Setup <input type="checkbox"/>        | Centre Not Concentric <input type="checkbox"/>  | BOM/Route <input type="checkbox"/>                         | Grain <input type="checkbox"/>                 | Over/Under tolerance <input type="checkbox"/> |
| Equip/Tooling <input type="checkbox"/>      | Supplier <input type="checkbox"/>            | Cracks <input type="checkbox"/>                 | Broken/Damage/Defect <input type="checkbox"/>              | Weld <input type="checkbox"/>                  | Part Incorrect <input type="checkbox"/>       |
| Handling/Pre <input type="checkbox"/>       | Training <input type="checkbox"/>            | Crimp/Kink/Ripple/Wave <input type="checkbox"/> | Inspection Incomplete/Unqualified <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/>    | Part Lost/Missing <input type="checkbox"/>    |
| Material <input type="checkbox"/>           | Use for Testing <input type="checkbox"/>     | Cuffs <input type="checkbox"/>                  | Contamination <input type="checkbox"/>                     | Out of Sequence <input type="checkbox"/>       | Part Moved <input type="checkbox"/>           |
| Internal Transport <input type="checkbox"/> | Poor Information <input type="checkbox"/>    | Crushing <input type="checkbox"/>               | Countersink <input type="checkbox"/>                       | Off-set <input type="checkbox"/>               | Drawing <input type="checkbox"/>              |
| Tribal Knowledge <input type="checkbox"/>   | Rushing <input type="checkbox"/>             | Heat Treat <input type="checkbox"/>             | Cut Too Short <input type="checkbox"/>                     | Mislabeled <input type="checkbox"/>            | Finish <input type="checkbox"/>               |
| LOA <input type="checkbox"/>                | Product Improvement <input type="checkbox"/> | Wave/Twist in Tube <input type="checkbox"/>     | Instructions Incomplete/Unclear <input type="checkbox"/>   | Fit/Function <input type="checkbox"/>          | Misread <input type="checkbox"/>              |
| Substation <input type="checkbox"/>         | Process Improvement <input type="checkbox"/> | Marks/Chatter <input type="checkbox"/>          | Drill Holes <input type="checkbox"/>                       | Misaligned/off center <input type="checkbox"/> | Turning Sequence <input type="checkbox"/>     |

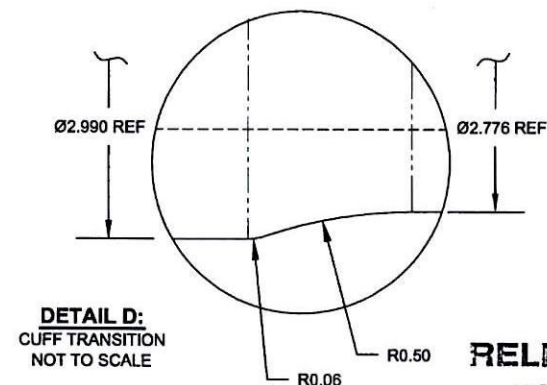




**D412-664-443TRN**  
TURNING DETAIL



**DETAIL C:**  
CUFF TRANSITION  
SCALE 4X



**RELEASED**

2017 JUN 21

|            |                    |                                                                                                                                                                                                                                                                                         |              |
|------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| DESIGN     | CP                 | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                |              |
| DRAWN      | AJS                |                                                                                                                                                                                                                                                                                         |              |
| CHECKED    | <i>[Signature]</i> | DRAWING NO.                                                                                                                                                                                                                                                                             | REV. B       |
| MFG. APPR. | <i>[Signature]</i> | D412-664-443                                                                                                                                                                                                                                                                            | SHEET 4 OF 4 |
| APPROVED   | <i>[Signature]</i> | TITLE                                                                                                                                                                                                                                                                                   | SCALE        |
| DE APPR.   | <i>[Signature]</i> | CROSSTUBE ASSEMBLY (412 HI AFT)                                                                                                                                                                                                                                                         | NTS          |
| DATE       | 16.11.03           | COPYRIGHT © 2013 BY DART AEROSPACE LTD<br><small>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small> |              |

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                          |  |                                              |  |
| Date :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Step #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | MRB (QSI042) Approval                        |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | Completed By                                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | Lead hand / Supervisor Approval Verification |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | QC / QA Coordinator Approval                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                              |  |
| Root Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | FAULT CATEGORY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                              |  |
| <div style="display: flex;"> <div style="flex: 1;">           Environment <input type="checkbox"/><br/>           Design <input type="checkbox"/><br/>           Doc/Data <input type="checkbox"/><br/>           Equip/Tooling <input type="checkbox"/><br/>           Handling/Pre <input type="checkbox"/><br/>           Material <input type="checkbox"/><br/>           Internal Transport <input type="checkbox"/><br/>           Tribal Knowledge <input type="checkbox"/><br/>           LOA <input type="checkbox"/><br/>           Substation <input type="checkbox"/><br/>           Past Expiry Date <input type="checkbox"/><br/>           Misidentified <input type="checkbox"/> </div> <div style="flex: 1;">           No Re-verification <input type="checkbox"/><br/>           Operator <input type="checkbox"/><br/>           Offset/Setup <input type="checkbox"/><br/>           Supplier <input type="checkbox"/><br/>           Training <input type="checkbox"/><br/>           Use for Testing <input type="checkbox"/><br/>           Poor Information <input type="checkbox"/><br/>           Rushing <input type="checkbox"/><br/>           Product Improvement <input type="checkbox"/><br/>           Process Improvement <input type="checkbox"/><br/>           Manufacturing Process <input type="checkbox"/><br/>           Past Due <input type="checkbox"/> </div> </div> | <div style="display: flex;"> <div style="flex: 1;">           Pressure/Forced <input type="checkbox"/><br/>           Bending <input type="checkbox"/><br/>           Centre Not Concentric <input type="checkbox"/><br/>           Cracks <input type="checkbox"/><br/>           Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>           Cuffs <input type="checkbox"/><br/>           Crushing <input type="checkbox"/><br/>           Heat Treat <input type="checkbox"/><br/>           Wave/Twist in Tube <input type="checkbox"/><br/>           Marks/Chatter <input type="checkbox"/> </div> <div style="flex: 1;">           Temperature/Cure <input type="checkbox"/><br/>           Set-up <input type="checkbox"/><br/>           BOM/Route <input type="checkbox"/><br/>           Broken/Damage/Defect <input type="checkbox"/><br/>           Inspection Incomplete/Unqualified <input type="checkbox"/><br/>           Contamination <input type="checkbox"/><br/>           Countersink <input type="checkbox"/><br/>           Cut Too Short <input type="checkbox"/><br/>           Instructions Incomplete/Unclear <input type="checkbox"/><br/>           Drill Holes <input type="checkbox"/> </div> </div> | <div style="display: flex;"> <div style="flex: 1;">           Power Loss/Surge <input type="checkbox"/><br/>           Folio/Program <input type="checkbox"/><br/>           Grain <input type="checkbox"/><br/>           Weld <input type="checkbox"/><br/>           Wrong Stock Pulled <input type="checkbox"/><br/>           Out of Sequence <input type="checkbox"/><br/>           Off-set <input type="checkbox"/><br/>           Mislabeled <input type="checkbox"/><br/>           Fit/Function <input type="checkbox"/><br/>           Misaligned/off center <input type="checkbox"/> </div> <div style="flex: 1;">           Positioned Wrong <input type="checkbox"/><br/>           Outside Dimensions <input type="checkbox"/><br/>           Over/Under tolerance <input type="checkbox"/><br/>           Part Incorrect <input type="checkbox"/><br/>           Part Lost/Missing <input type="checkbox"/><br/>           Part Moved <input type="checkbox"/><br/>           Drawing <input type="checkbox"/><br/>           Finish <input type="checkbox"/><br/>           Misread <input type="checkbox"/><br/>           Turning Sequence <input type="checkbox"/> </div> </div> |  |                                              |  |
| OTHER : <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                              |  |